CCCGGGCCCGGCCGCCGTCGCGGGACCCCGTGCCCGGCCGCCGTCGCCACCGCCGCCCCGGCCGACCGAG
GGACCCGCCCGCCCGCGGCTGCTCCGGACCTAGAGGATCAAGTCATAATGGGAGCATTTTTAGACAAGCC
AAAGATGGAGAAGCATAATGCCCAGGGGCAGGGGAATGGGTTACGATACGGCCTAAGCAGCATGCAAGGT
TGGCGAGTTGAAATGGAGGACGCACACACGGCTGTGATCGGTTTGCCAAGTGGACTTGAGACATGGTCAT
TCTTTGCTGTATATGATGGGCATGCTGGTTCTCAGGTTGCCAAATACTGCTGTGAGCACTTGTTAGATCA
CATCACCAATAACCAGGATTTCAGAGGATCTGCAGGAGCACCTTCTGTGGAGAACGTAAAGAATGGAATC
AGAACAGGGTTTCTGGAGATTGATGAACACATGAGAGTTATGTCAGAGAAGAAACATGGTGCAGATAGAA
GCGGGTCAACAGCTGTGGGCGTCTTAATCTCTCCCCAACATACTTATTTCATTAACTGTGGAGACTCGAG
AGGTTTACTTTGTAGGAATAGAAAAGTTCACTTCTTCACACAAGACCATAAACCAAGTAACCCGCTGGAA
AAAGAACGAATTCAGAATGCAGGGGGCTCGGTGATGATTCAGCGTGTCAATGGCTCTCTGGCTGTATCGA
GGGCCCTTGGGGATTTCGATTACAAATGTGTCCATGGAAAAGGTCCCACAGAGCAGCTTGTCTCCCCAGA
GCCCGAAGTCCATGATATTGAAAGGTCTGAAGAAGATGACCAGTTCATCATCCTTGCATGCGATGGCATC
TGGGACGTCATGGGGAACGAAGAGCTCTGTGACTTTGTGAGATCCAGACTTGAAGTCACTGATGACCTTG
AGAAAGTTTGCAATGAAGTAGTCGACACCTGCTTGTATAAGGGAAGTCGAGACAACATGAGTGTGATTTT
GATCTGTTTTCCAAGTGCACCCAAAGTCTCGGCAGAGGCGGTGAAGAAGGAGGCGGAGCTGGACAAGTAC
CTGGAGAGCAGAGTAGAAGAAATCATAAAGAAGCAGGTGGAAGGCGTCCCTGACTTAGTCCACGTGATGC
GCACGTTAGCCAGTGAGAACATCCCCAGCCTCCCACCAGGGGGTGAATTGGCAAGCAAGCGGAATGTAAT
TGAAGCCGTTTACAATAGACTGAACCCTTACAAAAATGACGACACTGATTCTGCGTCAACCGATGATATG
TGGTAAAGCCGCTCACCCAGCCGTGGACTCACCTTCGCCTGCAAAGGGGAAGCCAGCTCATCCTTGCCGA
GCCTTTACCATCCATCACCGACTTCACAGGAGGGTCTGACACGGGTGAGGACTGCAG (SEQ NO:1)

MGAFLDKPKMEKHNAQGQGNGLRYGLSSMQGWRVEMEDAHTAVIGLPSGLETW
SFFAVYDGHAGSQVAKYCCEHLLDHITNNQDFRGSAGAPSVENVKNGIRTGFLEID
EHMRVMSEKKHGADRSGSTAVGVLISPQHTYFINCGDSRGLLCRNRKVHFFTQDH
KPSNPLEKERIQNAGGSVMIQRVNGSLAVSRALGDFDYKCVHGKGPTEQLVSPEPE
VHDIERSEEDDQFIILACDGIWDVMGNEELCDFVRSRLEVTDDLEKVCNEVVDTCL
YKGSRDNMSVILICFPSAPKVSAEAVKKEAELDKYLESRVEEIIKKQVEGVPDLVH
VMRTLASENIPSLPPGGELASKRNVIEAVYNRLNPYKNDDTDSASTDDMW (SEQ
ID NO:2)

FIGURE 1

underlined = deleted in targeting construct

[ ] = sequence flanking Neo insert in targeting construct

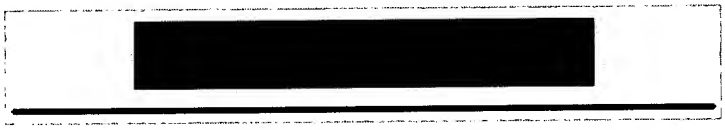
CCCGGGCCCGGCCGCCGTCGCGGGACCCCGTGCCCGGCCGCCGTCGCCACCGCCGCCCCG
GCCGACCGAGGGACCCGCCCGCCCGCGGCTGCTCCGG [ACCTAGAGGATCAAGTCATAATG
GGAGCATTTTTAGACAAGCCAAAGATGGAGAAGCATAATGCCC] **AGGGGCAGGGGAATGGG
TTACGATACGGCCTAAGCAGCATGCAAGGTTGGCGAGTTGAAATGGAGGACGCACACACG
GCTGTGATCGGTTTGCCAAGTGGACTTGAGACATGGTCATTCTTTGCTGTATATGATGGG
CATGCTGGTTCTCAGGTTGCCAAATA** [CTGCTGTGAGCACTTGTTAGATCACATCACCAAT
AACCAGGATTTCAGAGGATCTGCAGGAGCACCTTCTGTGGAGAACGTAAAGAATGGAATC
AGAACAGGGTTTCTGGAGATTGATGAACACATGAGAGTTATGTCAGAGAAGAAACATGGT
GCAGATAGAAGCGGGTCAACAGCTGTGGGCGTCTTAATCTCTCCCCAACATACTTATTTC
ATTAACTGTGGAGACTCGAGAGGTTTACTTTGTAGGAATAGAAAAGTTCACTTCTTCACA
CAAGACCATAAACCAAGTAACCCGCTGGAAAAAGAACGAATTCAGAATGCAGGGGGCTCG
GTGATGATTCAGCGTGTCAATGGCTCTCTGGCTGTATCGAGGGCCCTTGGGGATTTCGAT
TACAAATGTGTCCATGG] AAAAGGTCCCACAGAGCAGCTTGTCTCCCCAGAGCCCGAAGTC
CATGATATTGAAAGGTCTGAAGAAGATGACCAGTTCATCATCCTTGCATGCGATGGCATC
TGGGACGTCATGGGGAACGAAGAGCTCTGTGACTTTGTGAGATCCAGACTTGAAGTCACT
GATGACCTTGAGAAAGTTTGCAATGAAGTAGTCGACACCTGCTTGTATAAGGGAAGTCGA
GACAACATGAGTGTGATTTTGATCTGTTTTCCAAGTGCACCCAAAGTCTCGGCAGAGGCG
GTGAAGAAGGAGGCGGAGCTGGACAAGTACCTGGAGAGCAGAGTAGAAGAAATCATAAAG
AAGCAGGTGGAAGGCGTCCCTGACTTAGTCCACGTGATGCGCACGTTAGCCAGTGAGAAC
ATCCCCAGCCTCCCACCAGGGGGTGAATTGGCAAGCAAGCGGAATGTAATTGAAGCCGTT
TACAATAGACTGAACCCTTACAAAAATGACGACACTGATTCTGCGTCAACCGATGATATG
TGGTAAAGCCGCTCACCCAGCCGTGGACTCACCTTCGCCTGCAAAGGGGAAGCCAGCTCA
TCCTTGCCGAGCCTTTACCATCCATCACCGACTTCACAGGAGGGTCTGACACGGGTGAGG
ACTGCAG

FIGURE 2A

Gene Sequence Structure *

164 bp Sequence Deleted 326 bp

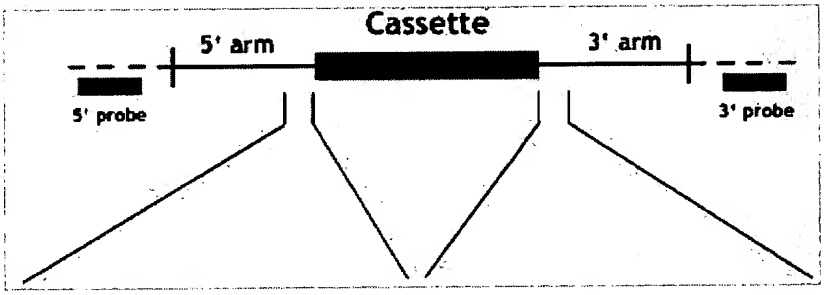
Size of full-length cDNA: 1387 bp



Targeting Vector* (genomic sequence)

Construct Number: 2639

LacZ-Neo Cassette



Arm L ngth:
5': 2.5 kb
3': 4 kb

5'>GCAACACAATGCTTGTAGGTA TAGCCTGTGAGTTTTTCCAGCTTC CTTGTATCTTATAGATTCTGGGTA AAGAGTGTTGGACATGTTTTGTTT CAAAGGCAATCACTTATTTTCTTA TTTCTCTTCCTTTACAGACCTAGA GGATCAAGTCATAATGGGAGCATT TTTAGACAAGCCAAAGATGGAGAA GCATAATGCCC<3' (SEQ ID NO:3)	5'>CTGCTGTGAGCACTTGTTAGA TCACATCACCAATAACCAGGATTT CAGAGGATCTGCAGGAGCACCTTC TGTGGAGAACGTAAAGAATGGAAT CAGAACAGGGTTTCTGGAGATTGA TGAACACATGAGAGTTATGTCAGA GAAGAAACATGGTGCAGATAGAAG CGGGTCAACAGCTGTGGGCGTCTT AATCTCTCCCC<3'(SEQ ID NO:4)

Targeting Vector
Endogenous Locus

* Not drawn to scale

FIGURE 2B